Appendix E: Best Management Practices & Standard Operating Procedures

Introduction

Best Management Practices

Best Management Practices (BMPs) are defined in the BLM Land Use Planning Handbook, H-1601-1 as "a suite of techniques that guide, or may be applied to, management actions to aid in achieving desired outcomes" (BLM 2005a). The BMPs for the Bureau of Land Management (BLM), Kremmling Field Office (KFO), are approved by the Authorized Official, and are adopted as policy for the KFO.

Standard Operating Procedures

Standard Operating Procedures (SOPs) are written procedures that provide direction for consistently and correctly performing routine operations. These written procedures set forth methods expected to be followed during the performance of a particular task (BLM 2005a). The SOPs for the BLM, KFO, are approved by the Authorized Official, and are adopted as policy for the KFO.

Management Guidelines for the Planning Area

The following guidelines, techniques, and practices (collectively referred to as Management Guidelines) are a general summary of the BMPs and the SOPs for the Planning Area, and were compiled from a variety of sources. These guidelines are by no means a comprehensive list. The goal of these guidelines, when utilized in conjunction with other Management Plans applicable to BLM-managed public lands, and their associated resources and resource uses, is to assist the BLM in achieving Desired Outcomes (Goals and Objectives) as outlined in the KFO Proposed RMP (PRMP)/ Final Environmental Impact Statement (FEIS) to reduce adverse (negative) environmental impacts. Any number of these guidelines can be applied to make progress towards, or to achieve, Desired Outcomes. Periodically, these guidelines may be updated so that they may stay current with the latest technology, and with U.S. Department of the Interior (DOI) and BLM direction.

The following Management Guidelines are identified by resource. A number of these Management Guidelines can be applied to a variety of situations; therefore, there may be a duplication or similarity of, and between, these guidelines. Furthermore, although these Management Guidelines may be identified for specific situations or actions [such as for wind energy right-of-ways (ROWs), livestock grazing, forestry, or road construction), they are not exclusive to those actions unless otherwise specified.

Resources

Air Quality

Air quality standards are governed by the Clean Air Act (CAA) of 1990, as amended [42 United States Code (USC) Chapter 85). The CAA, which was last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for pollutants considered harmful to public health and to the environment. The CAA established 2 types of national air quality standards:

- **Primary Standards --** Primary Standards set limits to protect public health, including the health of "sensitive" populations (such as asthmatics, children, and the elderly); and
- **Secondary Standards --** Secondary Standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA has established NAAQS for several different pollutants, which are often referred to as criteria pollutants, including: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, particulate matter, and lead. Standards for suspended particulate matter have been set for 2 size fractions: inhalable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

(Detailed information on these criteria pollutants can be found online at: http://www.epa.gov/air/criteria.html.) In addition, the EPA's Natural Gas STAR Program is a flexible, voluntary partnership that encourages oil and natural gas companies, domestically and abroad, to adopt cost-effective technologies and practices that improve operational efficiency and reduce emissions of methane, a potent greenhouse gas (GHG) and clean energy source. (Detailed information on this program can be found online at: http://www.epa.gov/gasstar/index.html.)

At the State level, The Colorado Air Pollution Prevention and Control Act of 1992 (Colorado Revised Statue 25-7-101) was passed to foster the health, welfare, convenience, and comfort of the inhabitants of the State of Colorado, and to facilitate the enjoyment and use of the scenic and natural resources of the State. Policy direction under this Act is intended to achieve the maximum practical degree of air purity in every portion of the State, to attain and maintain NAAQS, and to prevent the significant deterioration of air quality in those portions of the State where the air quality is better than the NAAQS. The Colorado Department of

Public Health and Environment (CDPHE), Air Quality Control Commission, also has established procedures and guidelines with regard to air quality. (These are available online at: http://www.cdphe.state.co.us/op/aqcc/.)

Soil Resources

BMPs are available on the Internet at: http://www.greenco.org/index.php.

Water Resources

BMPs are available on the Internet at: http://www.greenco.org/index.php.

Vegetation

Management Guidance in relation to vegetation resources comes from a variety of sources, as delineated below.

Vegetation -- Rangeland

Standard Operating Procedures

When making decisions about Proposed Actions in known sagebrush habitat, existing plans and guidance will be used by Interdisciplinary (ID) Teams, and considered in the decision-making process. This management guidance includes the conservation actions/guidelines identified in the Western Association of Fish and Wildlife Agencies – Guidelines to Manage Sage-Grouse Populations and Their Habitats, and the Colorado Greater Sage-Grouse Conservation Plan (Colorado Greater Sage-Grouse Steering Committee 2008).

Vegetation -- Riparian

Best Management Practices

1. Minimize crossing of streams (intermittent and perennial) and wetlands with vehicles and heavy machinery.
2. Locate residue piles (sawdust, field chipping residue, etc.) away from drainages where runoff may wash residue into water bodies or wetlands.

3. Maintain appropriate vegetative/riparian buffers around water bodies to protect water quality.
4. Manage riparian areas in a manner designed to provide adequate shade, sediment control, bank stability, and recruitment of wood into stream channels.
5. Locate project staging areas for refueling, maintenance equipment, materials and operating supplies in areas not designated as riparian and/or stream bank management zones.
6. Determine the best locations and design for roads, the slope of roads, and the approach to stream crossings through proper planning.
7. Do not locate roads/trails parallel to streams. Where roads must cross streams, they must cross perpendicularly, and then the roads/trails must immediately exit the buffer zone.
8. Place appropriate improvements (such as culverts) at stream crossings to keep vehicles/equipment out of the stream flow, and to prevent direct sedimentation of streams.
9. Maintain a minimum of 6-inch stubble height at the end of October on stream bank (lotic) riparian areas.
10. Maintain a minimum of 4-inch stubble height at the end of October on wet meadows (lentic) systems.

Vegetation-Weeds

Standard Operating Procedures

1. Take actions designed to prevent or minimize the need for vegetation control when and where feasible, considering the management objectives of the site.
2. Use effective non-chemical methods of vegetation control when and where feasible.
3. Develop plans to thoroughly evaluate the need for chemical treatments, and their potential for impact on the environment.
4. Re-seed or plant disturbed areas with desirable vegetation when the native plant community cannot recover and occupy the site sufficiently.
5. Survey the project site for species listed, or proposed for listing, or Special Status Species. If a proposed project may affect a Proposed or Listed Species, or its critical habitat, the BLM will consult with the U.S. Fish and Wildlife Service (USFWS) and/or with the National Marine Fisheries Service (NMFS). The BLM will also follow protective measures identified in the NMFS Endangered Species Act Section 7 Consultation Biological Opinion with regard to the impacts of the Proposed Vegetation Treatment Program for 17 Western States.

6. Avoid using tools and equipment for vegetation management in Wilderness Areas unless they are necessary for the protection of the wilderness resource.
7. Meet responsibilities for consultation and government-to-government relationships with Native American tribes by consulting with appropriate tribal representatives prior to taking actions that affect tribal interests.
8. Notify potentially affected parties of treatment activities that occur on BLM-managed public lands.
9. Ensure that the public is allowed input into vegetation management actions on BLM-managed public lands under the environmental analysis and review (NEPA) process.

Best Management Practices

1. Vegetation treatments will be governed by the Final Vegetation Treatments using Herbicides on Bureau of Land Management Land in 17 Western States Programmatic Environmental Impact Statement (BLM 2009h), and BLM Handbook 9000, Chemical and Biological Control, as well as:
    - The Federal Noxious Weed Act of 1974, as amended by Section 15 – Management of Undesirable Plant on Federal Lands, 1990, which authorizes Federal agencies "to cooperate with other Federal and State agencies, and others in carrying out operations or measures to eradicate, suppress, control, prevent, or retard the spread of any noxious weed."
    - Executive Order (EO) 13112 -1999, which enhances and orders coordination of Federal activities to control and minimize the economic, ecological, and human health impacts caused by invasive species. The EO also established a National Invasive Species Council to oversee a Management Plan detailing the Goals and Objectives of the efforts of the involved Federal agencies.
    - The Federal Plant Protection Act of 200 [Title IV Public Law (PL) 106-224] prohibits the introduction of any animal, plant, or material that is considered harmful to this country's agriculture. The U.S. Department of Agriculture (USDA), Plant Protection and Quarantine division is the enforcement authority for this Act.

Fish and Wildlife/Special Status Species

Standard Operating Procedures

- Fences constructed will comply with applicable wildlife fence standards (BLM Manual Handbook H-1741-1, Fences). Existing fences that impede big game movement, or that otherwise conflict with wildlife, may be modified to comply with applicable wildlife fence standards on a case-by-case basis.
- The KFO will consult agency Species Management Plans and other Conservation Plans, as appropriate, to guide management and devise mitigation measures when needed. [Examples of these plans include, but are not limited to:
    - The Intermountain West Regional Shorebird Plan (available on the Internet at: www.shorebirdplan.org/wp-content/uploads/2013/01/IMWEST4.pdf),
    - The North American Landbird Conservation Plan (available on the Internet at: http://www.pwrc.usgs.gov/pif/cont_plan/);
    - The North American Waterbird Conservation Plan (available on the Internet at: http://www.pwrc.usgs.gov/nacwcp/nawcp.html);
    - the Partners-in-Flight Colorado Bird Conservation Plan (available on the Internet at: http://www.rmbo.org/pif/copif.html)
    - The Colorado Bat Conservation Plan (available on the Internet at: http://www.cnhp.colostate.edu/teams/zoology/cbwg/consPlan.asp); and
    - The Colorado State Wildlife Action Plan (Comprehensive Wildlife Conservation Strategy) (available on the Internet at: http://wildlife.state.co.us/WildlifeSpecies/ColoradoWildlifeActionPlan/).]

Best Management Practices

1. Coordinate with the Colorado Parks and Wildlife (CPW) on BLM projects, and BLM-authorized projects that are proposed within 0.5 mile of a small-capacity water development, and 2.0 mile of a large-capacity wildlife water development. Projects determined to have a detrimental impact on wildlife using wildlife water developments will be avoided, or re-routed, if possible.
2. Coordinate with the CPW on migratory bird inventories when migratory bird inventories are proposed by BLM or required of third parties.
3. Wildlife water developments proposed in Wilderness Study Areas (WSAs) will have to meet the non-impairment criteria.

See also Vegetation–Riparian.

Cultural/Paleontological Resources and Native American Tribal Consultation

Standard Operating Procedures

1. All BLM activities shall comply with Cultural Resources Inventory General Guidelines (BLM 1989); BLM Manual 8110, Identifying and Evaluating Cultural Resources (BLM 2004c); BLM Manual 8160, Native American Coordination and Consultation (BLM1994), and the current State Protocol Agreement between the BLM and the Colorado State Historic Preservation Office (SHPO).
2. The BLM is responsible for considering the impacts that management actions or authorizations have on cultural resources located on non-Federal lands where such lands are included in, or a part of, an overall Federal action.
3. The BLM will conduct, or cause to be conducted, the inventory and evaluation of cultural resources on the non-Federal lands affected by the Federal action or authorization.
4. Identification and mitigation of an adverse impact to cultural resources on non-Federal lands may be required as a condition of an authorization issued by the BLM.
5. The BLM will mitigate, or cause to be mitigated, any adverse impacts to cultural resources that would result from a Federal action or authorization.
6. Where mitigation included data recovery, the artifacts, samples, and collections recovered from the non-Federal lands remain the property of the non-Federal landowner, unless donated to the BLM.
7. Holders of BLM authorizations are required to immediately bring to the attention of the Authorized Officer any and all antiquities; and/or other objects of historic, paleontological, or scientific interest including, but not limited to, historic or prehistoric ruins or artifacts DISCOVERED as a result of operations under this authorization (16 USC 470.-3, 36 CFR 800.112). The holder shall immediately suspend all activities in the area of the object, and shall leave such discoveries intact until written approval to proceed is obtained from the Authorized Officer. Approval to proceed will be based upon evaluation of the object(s). Evaluation shall be by a qualified professional selected by the Authorized Officer from a Federal agency insofar as practicable [BLM Manual 8140, Protecting Cultural Resources (BLM 2004d)]. When not practicable, the holder shall bear the cost of the services of a non-Federal professional.
8. Within 5 working days, the Authorized Officer will inform the holder as to:
    - whether the materials appear eligible for the National Register of Historic Places (NRHP);
    - the mitigation measures the holder will likely have to undertake before the site can be used (assuming in-situ preservation is not necessary); and

- a timeframe for the Authorized Officer to complete an expedited review under 36 CFR 800.11 to confirm, through the SHPO, that the findings of the Authorized Officer are correct, and that mitigation is appropriate.

9. If the holder wishes, at any time, to relocate activities to avoid the expense of mitigation, and/or the delays associated with this process, the Authorized Officer will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the holder will be responsible for mitigation costs. The Authorized Officer will provide technical and procedural guidelines for the conduct of mitigation measures. Upon verification from the Authorized Officer that the required mitigation has been completed, the holder will then be allowed to resume construction.
10. Antiquities, historic and/or prehistoric ruins, and/or paleontological objects or objects of scientific interest that are outside of the authorization boundaries but are directly associated with the impacted resource will also be included in this evaluation and/or mitigation.
11. Antiquities, historic and/or prehistoric ruins, and/or paleontological objects or objects of scientific interest, identified or unidentified, that are outside of the authorization and not associated with the resource within the authorization will also be protected. Impacts that occur to such resources, which are related to the authorizations activities, will be mitigated at the holder's cost.

Visual Resources

Best Management Practices

1. Refer to Visual Contrast Rating Worksheet Form 8400-4. (Available on the Internet at: http://nnsa.energy.gov/sites/default/files/seis/BLM%20VRM%20manual%208431.pdf).
2. Paint above-ground production facilities (such as buildings, pumping units, pipes, compressors, tanks, and treaters) colors that allow the facility to blend into the background.
3. All new equipment brought onto the sites should be painted the same color(s).
4. Use the following considerations when selecting a color and shade:
    - semi-gloss paints will stain and fade less than flat paints;
    - typically, the background is a vegetated background, and seldom a solid background;
    - the selected color should be one or two shades darker than the background; and

- consider the predominant season of public use; however, never paint an object to match snow.

Wildland Fire Ecology and Management

Standard Operating Procedures -- Fuels Management

1. Construct fuel breaks or green strips in a manner designed to protect wildland-urban interface (WUI) communities and important wildlife habitat, and provide for firefighter safety, by using mechanical, chemical, biological and prescribed fire treatment methods.
2. Construct fuel breaks and green strips in areas containing a good understory of native perennials to successfully compete with, and deter, the establishment and spread of annual species.
3. Seed green strips in areas that do not have a good understory of desirable native perennials that can successfully compete with annual species.
4. Where practicable, use large-scale landscape planning to connect fuel breaks and to avoid small piecemeal projects.
5. Maintain fuel breaks and green strips to ensure effectiveness.
6. Prevent seeded species from being grazed during the first growing season following seeding.
7. Provide fire prevention and mitigation outreach information and education to communities within the Planning Area.

Standard Operating Procedures - Fire Suppression

1. Resource Advisors, and other applicable specialists, should be used to advise the Incident Commander and suppression resources on the natural resource values during the suppression effort.
2. Avoid applying fire retardant in, or near, drinking water sources.
3. Avoid the application of retardant or foam within 300 feet of a waterway or stream channel. Deviations from this procedure are acceptable if life or property is threatened.
4. Fire lines will not be constructed by heavy equipment within riparian stream zones. If construction is necessary due to threats to life or property, control lines should terminate at the edge of the riparian zone at a location determined appropriate to meet fire suppression objectives based upon fire behavior, vegetation/fuel types, and firefighter safety.
5. For streams currently occupied by cutthroat trout or other aquatic Species Status Species, extractions of water from ponds or pools should not be allowed if stream

inflow is minimal, and if extraction of water will lower the existing pond or pool level.

6. Stream flow should not be impounded or diverted by mechanical means to facilitate extraction of water from the stream for fire-suppression efforts.
7. If it is determined that use of retardant or surfactant foam within 300 ft (91.5 m) of a waterway or stream channel is appropriate, due to threats to life or property; alternative line construction tactics are not feasible because of terrain constraints, congested areas, or lack of ground personnel; or potential damage to natural resources outweighs possible loss of aquatic life, then the Unit Administrator shall determine whether there have been any adverse impacts to federally listed species. If the action agency determines that adverse impacts were incurred by federally listed species or their habitats, then the action agency must consult with the USFWS, as required by 50 CFR 402.05 (Emergencies), as soon as practicable.
8. Avoid, whenever possible, burning out unburned islands of native vegetation, specifically Sagebrush communities.
9. Before using it on BLM-managed public lands within the Planning Area, thoroughly rinse to remove mud and debris from all fire-suppression equipment from off-District or out of State that was used to extract water from lakes, ponds, streams or spring sources. (Examples of this equipment include helicopter buckets, draft hoses, and screens.) After cleaning the equipment, disinfect it to prevent the spread of invasive aquatic species. Do not rinse equipment with disinfectant solutions within 100 feet of natural water sources. KFO suppression equipment used to extract water from sources known to be contaminated with invasive aquatic species, as identified by the USFWS and the CPW, should be disinfected before being used on BLM-managed public lands within the Planning Area.

Standard Operating Procedures – Emergency Stabilization and Rehabilitation

1. Stabilize areas that have low potential to naturally re-vegetate, and that have high wind and soil erosion potential. Treatments include the following:
    - installing waterbars and other drainage diversions, including culverts, along fire roads, dozer lines, and other cleared areas;
    - seeding and planting to provide vegetative cover;
    - spreading mulch to protect bare soil and discourage runoff;
    - repairing damaged roads and drainage facilities;
    - clearing stream channels of structures or debris that is deposited by suppression activities;
    - installing erosion-control structures;
    - installing channel-stabilization structures;

- Closing areas to livestock and wild horse and burro grazing to promote success of natural re-vegetation or establishment of seeded species;
- repairing or replacing range improvements and facilities; and
- monitoring emergency stabilization and rehabilitation (ES&R) treatments.

Forestry

Standard Operating Procedures

1. No fuel-wood cutting of live trees will be allowed for cottonwood, willow, alder, limber pine, white bark pine, and/or curl leaf mahogany, unless resource objectives allow otherwise.

Best Management Practices

1. Avoid heavy equipment use in stands of cottonwood, willow, alder, and limber pine. If heavy equipment use is necessary, allow on a case-by-case basis and mitigate for adverse impacts.
2. Allow dead-and-down collection of cottonwood, willow, alder, and limber pine, and white bark pine for personal use.
3. Protect seed and important wildlife habitat trees in pinyon/juniper stands.
4. Manipulate pinyon, juniper stands using mechanical, biological, and chemical treatments. Allow tree harvesting for woodland products and biomass reduction.

Public Guidelines for Christmas Tree and Firewood Harvesting

- Restrict vehicle use to existing roads and trails. Do not drive off road.
- Do not damage adjacent trees.
- When cutting down standing trees, cut the stump to 12-inches or less, or as close to the ground as possible.
- Scatter lopped branches at least 50 feet from the stump.
- Do not top a larger tree to obtain a Christmas tree.
- Do not cut trees that have been posted as “SEED TREE DO NOT FALL” or “WILDLIFE TREE DO NOT DISTURB.”
- Do not harvest any trees within 100 feet of a spring or creek unless trees are identified for selective removal to meet resource objectives.
- Please pack out your trash as well as trash left by others.

Livestock Grazing

Standard Operating Procedures

1. Allow re-growth before winter or un-grazed fall growth–recovery of root carbohydrates.
2. Usually, it is necessary to protect seedings from grazing for 1 full year, and through the growing season of the second year. Some seedings established during adverse weather cycles may need protection for a longer period.
3. Development of springs and seeps, or other projects affecting water and associated resources, shall be designed to maintain the associate riparian area and assure attainment of standards.

Best Management Practices

1. Livestock grazing could be used as an intensively managed prescriptive grazing practice to control cheatgrass and noxious or invasive weeds.
2. In spring, graze for a short duration earlier in the season so that sufficient soil moisture remains for plant recovery.
3. Implement short-duration grazing (up to 3 weeks) (more animals/smaller pastures) where infrastructure permits during the growing season. Avoid re-grazing the same plants in one growing season.
4. Rotate livestock use areas year-to-year; not in the same place at the same time each year.
5. Graze during the dormant season to allow plants to recover every year.
6. Allow for rest/recovery periods before, or after, grazing during critical growth periods.
7. Maintain range developments to maintain or improve distribution.
8. Avoid use most years in areas of valuable woody plants during times when they are selected.
9. Avoid selective use on key species by rest following heavy dormant season use.
10. Graze established seedings to avoid decadent plants and poor nutrient cycles; especially in crested wheatgrass seedings.
11. Avoid the following grazing management practices:
    - long seasonal use with no recovery time;
    - heavy use that stresses plants;
    - little or no re-growth before winter; little stubble for root crown protection;
    - use at the same time every year; thereby repeating the stress;

- no rest or growing season recovery; little recovery with long seasons of use;
- little or ineffective herding;
- salt placed in the same locations year after year;
- livestock left behind after pasture moves; and
- grazing during the critical growth period year after year.

12. Generally, seedings should not be grazed until the plants are well established.
13. Use rotation or deferment to vary the timing of grazing so as to allow for periodic rest of upland vegetation during critical growth periods.
14. Provide occasional rest to allow a whole growing season for recovery.
15. When using livestock to control cheatgrass or noxious or invasive weeds, match animal dietary preference or tolerance to the target species.
16. Use the target weed's biology when developing a grazing strategy.
17. Manage heavy grazing on target weed species to account for any intermixed desirable species.
18. Manage animals' post-treatment grazing to contain weed seeds.

Vegetation/Riparian Zone Management

Best Management Practices

1. Achieve proper functioning condition (PFC) by managing livestock grazing with appropriate riparian management practices.
2. Graze earlier in the season when cattle use uplands.
3. Plants should be grazed only once or twice per year.
4. Avoid hot season grazing of riparian areas.
5. Allow re-growth before winter by grazing early enough for substantial plant re-growth during the growing season to slow spring flows and retain soil.
6. For maintenance or improvement of willows, allow 2 growing seasons rest prior to late season use.
7. Maintain/provide alternate water sources for better distribution.
8. In addition to the grazing management practices to avoid (listed above), the following should also be avoided.
   - hot season grazing in big pastures with little riparian areas; poor distribution;
   - few waters and only riparian waters; poor distribution;

- heavy use that stresses plants, tramples banks, and/or consumes last year's wood; and
- little or no re-growth before winter; little stubble for sediment.

Recreation

Guidelines for recreation use can be found in the Land Use Planning Handbook H-1801-1 (BLM 2005a); the Recreation Permit Administration Handbook H-2930-1 (BLM 2006d), and 3 CFR 2930.

Special Recreation Permits (SRPs) will contain noxious weed management stipulations (including pre-event inventories designed to avoid infested areas; event management designed to avoid or isolate activities that could result in weed introduction or spread; monitoring and treatment of infestations exacerbated by the activity; and other appropriate noxious weed management stipulations).

Lands and Realty

Standard Operating Procedures

1. Power lines shall be constructed in accordance to standards outlined in "Suggested Practices for Raptor Protection on Power Lines, The State of the Art in 1996" [APLIC Avian Power Line Interaction Committee (APLIC) 1996]. ROW applicants shall assume the burden and expense of proving that proposed pole designs not shown in the above publication are "raptor safe." Such proof shall be provided by a raptor expert approved by the Authorized Officer.
2. ROWs and other lands and realty authorizations (including power lines, pipelines, transmission corridors, energy development sites and related development, and gravel pits) must contain noxious and invasive plant management terms or stipulations for all ground-disturbing actions. These will include conducting a pre-disturbance noxious weed inventory; designing to avoid or minimize vegetation removal and weed introduction or spread; managing weeds during the life of the ROW or authorization to prevent or minimize weed introduction or spread; abandoning the ROW or authorization to establish competitive vegetation on bare-ground areas; and monitoring revegetation success and weed prevention and control for a reasonable number of years.
3. Use of pesticides shall comply with all applicable State and Federal laws, rules, regulations, policies, standards, and guidelines. Pesticides shall be used only in accordance with their registered uses, and only within the limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the holder shall obtain from the Authorized Officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of

storage and disposal of containers, and any other information deemed necessary by the Authorized Officer. Emergency use of pesticides shall be approved in writing by the Authorized Officer prior to such use.

4. The holder(s) shall comply with all applicable laws, rules, regulations, policies, standards, and guidelines existing or hereafter enacted or promulgated. In any event, the holder(s) shall comply with the Toxic Substances Control Act of 1976, as amended (15 USC 2601, et seq.) with regard to any toxic substances that are used, generated by, or stored on the ROW (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) In addition, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.
5. The holder shall mulch disturbed areas designated by the Authorized Officer. The type of mulch shall meet one of the following requirements:
    - Straw used for mulching shall be from oats, wheat, rye, or other approved grain crops, and free from noxious weeds or other objectionable material, as determined by the Authorized Officer. Straw mulch shall be suitable for placing with mulch blower equipment.
    - Hay shall be certified weed-free. Hay shall be suitable for placing with mulch blower equipment.
    - Wood cellulose fiber shall be natural or cooked wood cellulose fiber; shall disperse readily in water; and shall be non-toxic. The homogeneous slurry or mixture shall be capable of application with power spray equipment. A colored dye that is non-injurious to plant growth may be used, when specified. Wood cellulose fiber shall be packaged in new, labeled containers.
6. Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines. When possible, require perch deterrents on existing or new overhead facilities.
7. Where new ROWs are necessary, co-locate new ROWs within existing ROWs where possible.
8. If a ROW is relinquished, the Authorized Officer will require the holder to complete reclamation with objective of ensuring re-establishment of any prior affected sage-grouse habitat.
9. Subject to valid existing rights including non-federal land inholdings: collocate required new ROWs within existing ROWs or where it best minimizes sage-grouse impacts. Use existing roads, or realignments to access valid existing rights that are not yet developed.

Best Management Practices

1. Coordinate with the CPW early in the sale process on proposals to sell public land encumbered by a small capacity wildlife water development.

Energy and Minerals

Actions involving minerals and energy are governed by:

- Surface Operating Standards and Guidelines to Oil and Gas Exploration and Development" (also known as "The Gold Book") (Revised 2007e);
- Onshore Oil and Gas Order No. 1
- Mineral Materials Disposal Handbook H-3600-1 (BLM 2002e);
- Solid Minerals Reclamation Handbook H-3042-1; and
- 43 CFR 8900.

Best Management Practices -- Fluid Minerals

Best Management Practices (BMPs) are defined in the BLM Land Use Planning Handbook, H-1601-1 as "a suite of state-of-the-art mitigation measures that guide, or may be applied to, management actions to aid in achieving desired outcomes" (BLM 2005a). BMPs are methods, measures, or practices that are applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts. For each proposed action, a number of BMPs may be applied as necessary to mitigate expected impacts. The following typical environmental Best Management Practices (BMP) may be applied to exploration activities, construction and utilization on individual Applications for Permit to Drill and associated rights-of-way on a case-by-case basis. These procedures are consistent with current national guidance and the Surface Operating Standards and Guidelines for Oil and Gas Development (Gold Book), 2007e. This list is not all inclusive and may be modified over time as conditions change and new practices are identified.

Exploration

1. Temporary gates will be installed for use during the course of operations, unless the fences were immediately repaired. On completion of operations, fences will be restored to, at least, their original condition.
2. During periods of adverse conditions affecting soil moisture caused by such climatic factors as thawing, heavy rains, snow, flooding, or drought, all activities off existing maintained roads that create excessive surface rutting may be suspended.

3. Off-road vehicle travel will be limited to that necessary to complete the geophysical operations.
4. The use of specialized low-surface impact equipment [wide- or balloon-tired vehicles, all-terrain vehicles (ATVs)] or helicopters may be required for any activities in off-road areas to protect the fragile soils or other resource values.
5. Powder magazines will be located at least 1 mile from traveled roads, unless otherwise authorized after analysis or review. Loaded shot holes and charges will be attended at all times.
6. All trash, flagging, and lath will be removed and hauled to an authorized disposal site. No oil or lubricants will be drained onto the ground surface.
7. The underside of all heavy equipment must be cleaned by water before being driven onto public lands. Driving through, or parking on, noxious weed infestations will be avoided.
8. All topsoil from all disturbances will be stockpiled for use in reclamation projects.
9. Vegetation that is removed will be stockpiled, shredded, and used as mulch during site rehabilitation.
10. Drill-hole cuttings will be returned to the hole if possible or, at a minimum, will be raked and spread out so as not to impede regrowth of vegetation or to create erosion problems.

Pre-Construction

1. Existing roads should be used to the extent possible. Additional roads, if needed, will be kept to an absolute minimum, and the location of routes must be approved by the Authorized Officer prior to construction.
2. All access roads will be constructed and maintained to current BLM road standards.
3. Off-road travel will be restricted to terrain with less than 30 percent slopes; 20 percent if highly erodable.
4. Proposed surface disturbance and vehicular travel will be limited to the approved well location and access route.

Well Pad and Facility Construction

1. Every pad, access road, or facility site must have an approved Surface Drainage Plan.
2. Drainage from disturbed areas will be confined or directed so that erosion of undisturbed areas will not be increased.
3. No runoff water (including that from roads) will be allowed to flow into intermittent or perennial waterways without first passing through a sediment-trapping

mechanism. Erosion-control structures may include water bars, berms, drainage ditches, sediment ponds, or devices. Existing oil and gas roads that are in eroded condition or contribute to other resource concerns will be brought to BLM standards within a reasonable period of time.

4. Access road construction for exploratory wells should be planned such that a permanent road could later be constructed in the event of field development. All new roads will be designed and constructed to a safe and appropriate standard, "no higher than necessary" to accommodate intended vehicular use.
5. Construction of access roads on steep hillsides and near watercourses will be avoided where alternate routes provide adequate access.
6. Access roads requiring construction with cut-and-fill will be designed to minimize surface disturbance; and will take into account the character of the landform, natural contours, cut material, depth of cut, where the fill material will be deposited, resource concerns, and visual contrast. Roads will follow the contour of the land where practical.
7. Fill material will not be cast over hilltops or into drainages. Cut slope ratios should normally be no steeper than 3:1; and fill slopes no steeper than 2:1.
8. Low-water crossings will be used whenever possible.
9. Placement of production facilities on hilltops and ridgelines will be avoided to the extent possible. Well site layout should take into account the character of the topography and landform. Deep vertical cuts and steep long fill slopes should be avoided. All cut-and-fill slopes should be constructed to the least percent slope practical.
10. Trash will be retained in portable trash cages and hauled to an authorized disposal site for disposal. Burning will not be allowed on the well site.
11. Cattleguards will be installed and maintained whenever access roads go through pasture gates or fences. Maintenance includes cleaning out under cattle guard bases, when needed.
12. When fences are necessary, require a sage-grouse-safe design.
13. Mud, separation pits, and other containments used during the exploration or operation of the lease for the storage of any hazardous materials will be adequately fenced, posted, or covered.

Utilization

1. Operations will be done in a manner that prevents damage to, or interference or disruption of, water flows and improvements associated with all springs, wells, or impoundments.
2. Companies controlling roads that provide access into crucial wildlife areas may be required to close the road with a lockable gate to prevent general use of the road during critical periods of the year when resource problems are experienced (for example, during hunting seasons and winter).
3. The use of closed road segments will be restricted to legitimate authorized agents of the lessee or their subcontractor(s), the land managing agency, and/or to other agencies with a legitimate need (for example, the CPW and law enforcement agencies).
4. Locate roads to avoid important areas and habitats.
5. Coordinate road construction and use among Federal fluid mineral lessees and ROW holders.
6. Petroleum products (such as gasoline, diesel fuel, helicopter fuel, crankcase oil, lubricants, and cleaning solvents) used to fuel, lubricate, and clean vehicles and equipment will be stored in approved containers.
7. Hazardous materials will be properly stored in separate containers to prevent mixing, drainage, or accidents. Hazardous materials will not be drained onto the ground or into streams or drainage areas.
8. Totally enclosed containment will be provided for all solid construction waste. Trash, garbage, petroleum products, and related litter will be promptly removed to an authorized sanitary landfill approved for the disposal of these classes of waste.
9. All powerlines to individual well locations (excluding major power source lines to the operating oil or gas field) and all flow lines will be buried in or immediately adjacent to the access roads where feasible.
10. In developing oil and gas fields, all production facilities may be centralized to avoid tanks and associated facilities on each well pad where necessary to address resource issues.
11. Multiple wells will be drilled from a single well pad wherever feasible.
12. Noise reduction techniques and designs will be used to reduce noise from compressors or other motorized equipment.
13. All above ground facilities including power boxes, building doors, roofs, and any visible equipment will be painted a color selected from the latest national color charts that best allows the facility to blend into the background. Screen facilities from view whenever possible.

Interim and Final Reclamation

1. A reclamation plan is included in the Surface Use Plan of Operations and should discuss plans for both interim and final reclamation.

2. Planning for reclamation prior to construction is critical to achieving successful reclamation in the future. Reclamation becomes significantly more difficult, more expensive, and less effective if sufficient topsoil is not salvaged, interim reclamation is not completed, and if proper care is not taken to construct pads and roads in locations that minimize reclamation needs.

3. Final reclamation of all oil and gas disturbance will involve recontouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography and revegetating all disturbed areas. It also involves salvaging and reusing all available topsoil (whatever soil is on top) in a timely manner, revegetating disturbed areas to native species, controlling erosion, controlling invasive nonnative plants and noxious weeds, and monitoring results. Reclamation measures should begin as soon as possible after the disturbance and continue until successful reclamation is achieved.

4. The long-term objective of final reclamation is to set the course for eventual ecosystem restoration, including the restoration of the natural vegetation community, hydrology, and wildlife habitats. In most cases, this means returning the land to a condition approximating or equal to that which existed prior to the disturbance.

5. During the life of the development, all disturbed areas not needed for active support of production operations should undergo "interim" reclamation in order to minimize the environmental impacts of development on other resources and uses. Reclamation is required of any disturbed surface that is not necessary for continued production operations.

6. Disturbed areas should be revegetated after the site has been satisfactorily prepared. Site preparation will include respreading topsoil to an adequate depth, and may also include ripping, tilling, disking on contour, and dozer track-imprinting.

7. Any topsoil pile set aside should be revegetated to prevent it from eroding and to help maintain its biological viability.

8. All pits must be reclaimed to a safe and stable condition and restored to a condition that blends with the rest of the reclaimed pad area. If necessary, the pit area should usually be mounded slightly to allow for settling and positive surface drainage.

9. Interim reclamation of the well and access road will begin as soon as practicable after a well is placed in production. Facilities will be grouped on the pads to allow for maximum interim reclamation. Interim reclamation will include road cuts and fills and will extend to within close proximity of the wellhead and production facilities.

10. When practical, the operator should respread topsoil over the entire location and revegetate to within a few feet of the production facilities, unless an all-weather, surfaced, access route or turnaround is needed.

11. To achieve final reclamation, the well site must be recontoured to original contour or a contour that blends with the surrounding landform, stockpiled topsoil evenly redistributed, and the site revegetated. Salvaged topsoil must be respread evenly over the surfaces to be revegetated. The topsoiled site should be prepared to provide a seedbed for reestablishment of desirable vegetation.
12. Final reclamation includes recontouring the road back to the original contour, seeding, controlling noxious weeds, and may also include other techniques to improve reclamation success, such as ripping, scarifying, replacing topsoil, constructing waterbars, pitting, mulching, redistributing woody debris, and barricading.

Renewable Energy

Standard Operating Procedures

1. Authorize ROWs by applying appropriate BMPs (Final Programmatic Environmental Impacts Statement on Wind Energy Development on BLM-Administered Lands in the Western United States, BLM 2005c), land use restrictions, stipulations, and mitigation measures.
2. An environmental analysis document is required for applications for monitoring sites in known Sage-grouse Population Management Units.

Best Management Practices -- Planning, Location, and Design

1. Operators will consult with local planning authorities regarding increased traffic prior to the construction phase, including an assessment of the number of vehicles per day, their size, and type. Specific issues of concern (such as location of school bus routes and stops) will be identified and addressed in the Travel Management Plan.
2. Existing roads and pad sites will be used to the maximum extent feasible, but only if located in a safe and environmentally sound location. No new roads and pad sites will be constructed without agency authorization. If new roads and pad sites have been authorized, they will be designed and constructed by the Operator to the appropriate agency standard, and no higher than necessary to accommodate their intended function. Roads and pad sites will be routinely maintained by the Operator to maintain public safety and to minimize impacts to the environment (such as erosion, sedimentation, fugitive dust, loss of vegetation).
3. The Operator will perform a detailed geotechnical analysis prior to the construction of any structures, so that they will be sited to avoid any hazards from subsidence or liquefaction (such as the changing of a saturated soil from a relatively stable solid state to a liquid during earthquakes or nearby blasting).
4. The Operator will incorporate visual design considerations into the planning and design of the project in order to minimize potential visual impacts of the proposal,

and to meet Visual Resource Management (VRM) objectives of the area and the agency.

5. Low-profile structures will be constructed whenever possible to reduce structure visibility.
6. Operators will develop a Hazardous Materials Management Plan addressing storage, use, transportation, and disposal of each hazardous material anticipated to be used at the site. The Plan will identify all hazardous materials that will be used, stored, or transported at the site. It will establish inspection procedures, storage requirements, storage quantity limits, inventory control, non-hazardous product substitutes, and disposition of excess materials. The Plan will also identify requirements for notices to Federal and local emergency response authorities, and will include emergency response plans.
7. The Operator will coordinate with livestock operators to minimize impacts to livestock operations.
8. Operators will develop a plan for control of noxious weeds and invasive species that could occur as a result of new surface-disturbance activities at the site. The most recent recommendations at the local and State level should be incorporated into any Operating Plan for the geothermal exploration and development. The Plan will address monitoring, education of personnel on weed identification, the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulching will be required. If trucks and construction equipment are arriving from locations with known invasive vegetation problems, a controlled inspection and cleaning area will be established to visually inspect construction equipment arriving at the project area, and to remove and collect seeds that may be adhering to tires and other equipment surfaces.
9. The Operator will prepare a Habitat Restoration Plan to avoid (if possible), minimize, or mitigate negative impacts on vulnerable wildlife while, at the same time, maintaining or enhancing habitat values for other species. The Plan will identify revegetation, soil stabilization, and erosion reduction measures that will be implemented to ensure that all temporary use areas are restored. The Plan will require that restoration occur as soon as possible after completion of activities to reduce the amount of habitat converted at any one time, and to speed up the recovery to natural habitats.

Best Management Practices -- Geothermal

Prior to geothermal exploration and development, a complete subsurface geotechnical investigation will be conducted to analyze the soil and geologic conditions. The investigation will evaluate and identify potential geologic hazards, and will provide remedial grading recommendations, foundation and slab design criteria, and soil parameters for the design of geothermal power infrastructure.

1. The Operator will collect available information describing the environmental and socio-cultural conditions in the vicinity of the proposed project, and will provide the information to the BLM.

2. A Monitoring Program will be developed by the Operator to ensure that environmental conditions are monitored during the exploration and well drilling, testing, construction, utilization, and reclamation phases. The Monitoring Program requirements, including adaptive management strategies, will be established at the project level to ensure that potential adverse impacts of geothermal development are mitigated. The Monitoring Program will identify the monitoring requirements for each major environmental resource present at the site, establish metrics against which monitoring observations can be measured, identify potential mitigation measures, and establish protocols for incorporating monitoring observations and additional mitigation measures into ongoing activities. The Operator will provide the results of the Monitoring Program to the BLM in an Annual Report.

3. The Operator will comply with the Secretary of Interior rules and regulations for uses of all existing improvements (such as BLM development roads) within and outside of the area permitted by the Secretary of Interior; and use and occupancy of the BLM-managed public lands not authorized by an Exploration Plan approved by the Secretary of Interior.

Best Management Practices -- Construction

1. Traffic will be restricted to the roads developed for the project. Use of other unimproved roads will be restricted to emergency situations.
2. The Operator will obtain agency authorization prior to borrowing soil or rock material from BLM-managed public lands.
3. Pipelines constructed above ground, due to thermal gradient induced expansion and contraction, will rest on cradles above ground level to allow small animals to pass underneath. Projects should be analyzed to ensure adequate passage for all wildlife species. The pipeline will be raised higher to allow wildlife passage where needed. Pipeline corridors through certain habitat types can alter local predator-prey dynamics by providing predators with lines-of-sight and travel corridors; therefore, large projects should be analyzed to ensure that there will be no significant changes to predator-prey balance.
4. Underground utilities will be installed in a manner designed to minimize the amount of open trenches at any given time, keeping trenching and backfilling crews close together. Avoid leaving trenches open overnight. Where trenches cannot be back-filled immediately, escape ramps should be constructed at least every 100 feet.

Reclamation

The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat, visual, and forage loss during the life of the well or facilities.

The long-term objective of final reclamation is to return the land to a condition approximating that which existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. In order to ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure that standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

Wilderness, Wilderness Study Areas, Wilderness Characteristics

Standard Operating Procedure

All Wilderness Study Areas (WSAs) will be managed in accordance with the Interim Management (IM) Policy and Guidelines for Lands under Wilderness Review H-8500-1.

Transportation Facilities

Standard Operating Procedures

1. Continue coordination with Counties and other agency road entities to promote the use of the BMPs for road maintenance performed within the KFO boundaries.
2. Maintain an inventory of existing road and trail systems.
3. Use BLM Manual 9100, Facilities Planning, Design, Construction and Maintenance (Section 9113, Roads) (BLM 2008t) to guide all maintenance and road construction designs and requirements. Include definitions for functional road classification and maintenance levels for BLM-managed roads.
4. All highway ROWs and other road authorizations will contain noxious and invasive weed stipulations that include prevention, inventory, treatment, and revegetation or rehabilitation. Road abandonment will include at least 3 years of post-abandonment monitoring and treatment.

Best Management Practices

1. In order to ensure public access and safety, the KFO shall continue an active road maintenance program employing the use of redesign; blading; brush removal for sight distance, as appropriate; scarification; graveling; water barring; low-water crossings; spur ditching; seeding; and installation /cleaning of culverts.

National Environmental Policy Act (NEPA) Requirements

No new environmental analysis will be required for road maintenance activities within the defined maintenance disturbance/easement footprint, which is defined as previously disturbed or maintained. Disturbance outside of the defined maintenance disturbance/easement footprint or road realignment will be subject to additional compliance with the NEPA.

Summary

The BMPs/SOPs listed in this Appendix are not "one size fits all," and do not encompass all the effective BMPs/SOPs currently required and/or available. These BMPs/SOPs expand and supplement the basic guidelines and minimum requirements of the BLM laws, rules, regulations, policies, standards, and guidelines. However, several common themes related to the mitigation of environmental impacts were expressed throughout the previous sections, including:

1. the need for proper planning related to timing, spatial extent, and duration critical to minimize environmental impacts;
2. the value of consulting with resource and field specialists to make educated and accurate management decisions;
3. the importance of considering more than one factor (such as just wildlife, or just water quality.) when developing and/or implementing management activities;
4. the necessity of contingency Revegetation Plans in cases where natural reestablishment of native vegetation may not be feasible due to lack of seed source or impacts from competing non-native/invasive vegetation;
5. the need to give special emphasis to the protection of sensitive resources (such as to Listed Species habitats, Cultural Resources, etc.); and
6. the importance of developing inventory and monitoring strategies.

Sources and General Guidance

The following are additional sources and references that the BLM uses, on a case-by-case basis, for additional BMP guidance applicable to the Planning Area. Many of the sources used are included; however, as mentioned above, these references are not all-inclusive and can change when they are amended or when new guidance or policy is issued.

Agreements and Protocols

- Agreement between the Advisory Council on Historic Preservation (ACHP) and the National Conference of State Historic Preservation Officers (NCSHOP) regarding the manner in which the BLM will meet its responsibilities under the National Historic Preservation Act (NHPA).
- Agreement between the BLM Colorado State Director and the Colorado SHPO regarding the manner in which the BLM will meet its responsibilities under the NHPA and the National Programmatic Agreement between the BLM, the Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers (1998 Colorado Protocol).
- 2007 Addendum to the Colorado Protocol. CTTM planning and implementation will be consistent with the Colorado Policy on Cultural Clearances for Travel Planning – Addendum 1 to the Colorado Protocol: Section 106 Requirements for Comprehensive Travel and Transportation Management Planning (BLM.2006i).

Authorities

Acts

- The Agricultural Conservation Program (16 USC 590d);
- The Alaska National Interest Lands Conservation Act of December 2, 1980 (94 Stat. 2371);
- The Alaska Native Claims Settlement Act of December 18, 1971 (43 USC 1601);
- The American Indian Religious Freedom Act (42 USC 1996, 1996a);
- The Antiquities Act of 1906 (16 USC. 431 et seq.);
- The Archaeological Resources Protection Act of 1979 (16 USC 470a et seq.);
- The Bald Eagle Protection Act of 1940 (16 USC 668);
- The Bankhead Jones Farm Tenant Act of July 22, 1937 (7 USC 1012);
- The Carlson Foley Act of 1968 (PL 90-583);
- The Clean Air Act of 1970 (42 USC1857-58a);

- The Clean Air Act of 1990, as amended (42 USC 7401 et seq.);
- The Clean Water Act of 1987, as amended (33 USC 1251);
- The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 USC 9601 et seq.);
- The Disaster Relief Act of May 22, 1974 (42 USC 5121);
- The Economy Act of June 30, 1932 (16 USC);
- The Endangered Species Act of 1973 (16 USC 1531 et seq.);
- The Energy Policy Act of 2005 (43 USC 15801);
- The Environmental Quality Improvement Act of 1970 (42USC 4371-4375);
- The Federal Cave Resources Preservation Act of 1988 (16 USC 4351 et seq.);
- The Federal Fire Prevention and Control Act of October 29, 1974 (15 USC 2201);
- The Federal Food, Drug, and Cosmetic Act (21 USC 301 et seq.);
- The Federal Grant and Cooperative Agreement Act of 1977 (31 USC 6301-6308);
- The Federal Insecticide, Fungicide, and Rodenticide Act (7 USC 136 et seq.);
- The Federal Land Exchange Facilitation Act of 1988 (43 USC 1701);
- The Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701 et seq.);
- The Federal Lands Recreation Enhancement Act of 2005 (16 USC 6801 et seq.);
- The Federal Land Transaction Facilitation Act (FLTFA) (43 USC 2301 et seq.);
- The Federal Noxious Weed Act of 1974 (7 USC 2801 et seq.);
- The Federal Property and Administrative Service Act of 1949 (40 USC 471 et seq.);
- The Federal Quality Protection Act of 1996 (7 USC 136 et seq.);
- The Fish and Wildlife Coordination Act of 1958 (16 USC 661 et seq.);
- The Fish and Wildlife Improvement Act of 1978 (92 Stat. 3110, P.L. 95-616);
- The Fishery Conservation and Management Act of 1976 (16 USC 1801 et seq.);
- The Food Security Act of 1985 (Farm Bill);
- The Great Plains Conservation Program (16 USC S Op.);
- The Historic Sites Act of 1935 (16 USC 461 et seq.);
- The Indian Self-Determination and Education Assistance Act (PL 93-638);
- The McSweeney-McNary Act of 1928 (16 USC 487);
- The Migratory Bird Treaty Act of 1918 (16 USC et seq.);
- The Mineral Leasing Act of 1920 (30 USC 181 et seq.);

- The National Environmental Policy Act of 1969 (NEPA) (42 USC 4321-4370);
- The National Historic Preservation Act of 1966 (16 USC 470 et seq.);
- The National Indian Forest Resources Management Act of 1990 (PL 101-630);
- The National Wildlife Refuge System Administration Act of 1966 as amended (16 USC 668dd-668ee);
- The National Park Service Acts as amended (16 USC 1b);
- The Native American Graves Protection and Repatriation Act (25 USC 3001 et seq.);
- The Noxious Weed Control and Eradication Act of 2004 (7 USC 7781 et seq.);
- The Oregon and California (O&C) Act of August 28, 1937 (43 USC 1181e);
- The Plant Protection Act (7 USC 7701 et seq.);
- The Preservation of Historical and Archaeological Data Threatened by Dam Construction or Alterations of Terrain (16 USC 461 et seq.);
- The Protection Act of September 20, 1922 (16 USC 594);
- Public Law 106-206, Commercial Filming;
- The Public Rangelands Improvement Act of 1978 (43 USC 1901 et seq.);
- The Reciprocal Fire Protection Act of May 27, 1955 (42 USC 1856a);
- The Reclamation Act of 1902 (43 USC 391);
- The Recreation and Public Purposes Act as amended (43 USC 869 et seq.);
- The Resource Conservation and Recovery Act of 1976 (RCRA) (42 USC 1901 et seq.);
- The Soil Conservation and Allotment Domestic Act of April 27, 1935, as amended (16 USC 590a-590q);
- The Supplemental Appropriation Act of September 10, 1982 (96 Stat. 837);
- The Surface Mining Control and Reclamation Act of 1977 (30 USC 1201 et seq.);
- The Act of September 15, 1960, as amended (16 USC 670 et seq.);
- The Federal Water Projects recreation Act (16 USC 4601-12 et seq.);
- The Land and Water Conservation Fund Act of 1965 (16 USC 4601-6a);
- The National Parks and Recreation Act of 1978 (16 USC 1242-1243);
- The National Trails System Act of 1968 (16 USC 1241-1251);
- The Outdoor Recreation Act of May 28, 1963 (16 USC 4601-1);
- The Pierce Act of 1938 (52 Stat. 1033);
- The Sikes Act of 1974, as amended (16 USC 670 et seq.);
- The Wild and Scenic Rivers Act (16 USC 1281c);

- The Wild and Scenic Rivers Act of 1968 (16 USC 1271 et seq.);
- The Wilderness Act (16 USC 1131c) & (43 USC 1702i);
- The Taylor Grazing Act of June 28, 1934 (43 USC 315);
- The Tribal Self-Governance Act of 1994 (PL 013-413);
- The U.S. Department of Interior and Related Agencies Appropriations Act (PL 103-32); and
- The Wildfire Suppression Assistance Act of 1989 (PL 100-428 as amended by PL 101-11);

Code of Federal Regulations (CFRs)

- 36 CFR -- Parks, Forests, and Public Property
- 43 CFR -- Public Lands, Interior

Executive Orders/Secretarial Orders

- EO 11644, Use of Off-Road Vehicles on the Public Lands;
- EO 11738, Providing for Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants or Loans;
- EO 11988, Flood Plain Management;
- EO 11989, Use of Off-Road Vehicles on the Public Lands;
- EO 11990, Protection of Wetlands;
- EO 13112, Invasive Species;
- EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management; and
- Secretarial Order 3226, Evaluating Climate Change Impacts in Environmental Planning;

Guidelines

- Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service General Technical Report, INT.-122, 22p. Intermountain Forest and Range Experiment Station. (BLM 2006f).
- BEHAVE: Fire Behavior Prediction and Fuel Modeling System – BURN Subsystem, Part 1. USDA Forest Service General Technical Report, INT.-194 (BLM 2011a).
- BLM's National Management Strategy for Motorized Off-Highway Use on Public Lands, January 19, 2001 (BLM 2001b).

- BLM National Sage-Grouse Habitat Conservation Strategy, November 2004 (BLM 2004a).
- BLM National Sage-Grouse Habitat Conservation Strategy, 1.3.1 Guidance for Addressing Sagebrush Habitat Conservation in BLM Land Use Plans, November 2004. (Available on the Internet at: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Planning_and_Renewable_Resources/fish__wildlife_and.Par.53354.File.dat/Sage-Grouse_Strategy_1_3_1.pdf1.pdf)
- BLM's Priorities for Recreation and Visitor Services (Purple Book) (BLM 2003c). (Available on the Internet at: http://www.ntc.blm.gov/krc/uploads/320/BLM%20Priorities%20Recreation%20and%20Visitor%20Services%20(Purple%20Book).pdf)
- BLM Visual Resource Management for Fluid Minerals. Best Management Practices/Participants Notebook Field Reference Guide (BLM 2007o).
- Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (commonly referred to as The Gold Book) (BLM 2006e).
- Bonytail (*Gila elegans*) Recovery Goals: amendment and supplement to the Bonytail Chub Recovery Plan. U.S. Fish and Wildlife Service, Mountain Prairie Region (6). U.S. Department of the Interior (USFWS 2002a). (Available on the Internet at: http://ecos.fws.gov/docs/recovery_plan/060727a.pdf)
- Boreal Toad Recovery Plan (CDOW 2001). (Available on the Internet at:

  http://wildlife.state.co.us/Research/Aquatic/BorealToad/Pages/BorealToad.aspx)
- CDOW's Actions to Minimize Adverse Impacts to Wildlife Resources (CDOW 2008e).
- Colorado Greater Sage-Grouse Conservation Plan (Colorado Greater Sage-Grouse Steering Committee 2008).
- Colorado Office of Archaeology and Historic Preservation Cultural Report Guidelines and Forms (BLM 2011b). (Available on the Internet at: http://www.blm.gov/pgdata/etc/medialib/blm/co/programs/cultural_resources.Par.72785.File.dat/Handbook_revised%203-2011.pdf)
- Colorado Policy on Cultural Clearances for Travel Management Planning – Addendum 1 to the Colorado Protocol: Section 106 Requirements for Comprehensive Travel and Transportation Management Planning. (Available on the Internet at: http://www.blm.gov/pgdata/etc/medialib/blm/co/information/efoia/2007/2007_im.Par.53849.File.dat/COIM2007-023ATT1.pdf)
- Colorado's Comprehensive Wildlife Conservation Strategy (CDOW 2006c). (Available on the Internet at: http://wildlife.state.co.us/WildlifeSpecies/ColoradoWildlifeActionPlan/Pages/ColoradoWildlifeActionPlan.aspx)
- Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW). (Available on the Internet at: http://www.fs.fed.us/ficmnew/index.shtml)

- Humpback Chub Recovery Plan (USFWS 1990b). (Available on the Internet at:
- http://www.fws.gov/southwest/es/Arizona/Documents/RecoveryPlans/Humpback_Chub_1990.pdf)
- Interagency Standards for Fire and Fire Aviation Operations 2009, Department of the Interior: BLM, NPS, USFWS; Department of Agriculture: USFS. January 2009 NFES 2724 (BLM, NPS, USFWS, USFS 2009).
- Least Tern Recovery Plan. USFWS, Region 6 (USFWS 1990a). (Available on the Internet at: http://www.fws.gov/montanafieldoffice/Endangered_Species/Recovery_and_Mgmt_Plans/Least_Tern_Recovery_Plan.pdf
- Low-Volume Roads Engineering, Best Management Practices Field Guide. Developed by Gordon Keller and James Sherar. (Available on the Internet at: http://ntl.bts.gov/lib/24000/24600/24650/Index_BMP_Field_Guide.htm)
- Lynx Conservation Assessment and Strategy (Lynx Biology Team 2000).
- Managing the Impacts of Wildfires on Communities and the Environment – A Report to the President, August 2000. (Available on the Internet at: http://clinton4.nara.gov/CEQ/firereport.pdf)
- Meeting the Invasive Species Challenge. (National Invasive Species Council. 2001). (Available on the Internet at: http://www.invasivespeciesinfo.gov/docs/council/mp.pdf)
- National Fire Plan, A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment – 10 Year Strategy Implementation Plan (DOI and UDSA 2000).
- North Park Phacelia Recovery Plan (USFWS 1986).
- Northwest Colorado Council of Governments, Water Quality Protection Standards. (Available on the Internet at: http://www.nwc.cog.co.us/index.php/programs/watershed-services/)
- Osterhout Milkvetch and Penland Beardtongue Recovery Plan (USFWS, 1992). (Available on the Internet at: http://ecos.fws.gov/docs/recovery_plan/920930c.pdf)
- Pallid Sturgeon Recovery Plan (USFWS, 1993). (Available on the Internet at: http://ecos.fws.gov/docs/recovery_plans/1993/931107.pdf)
- Pikeminnow Recovery Plan (USFWS, 2002d). (Available on the Internet at: http://ecos.fws.gov/docs/recovery_plan/020828b.pdf)
- Razorback Sucker Recovery Plan (USFWS, 2002e. (Available on the Internet at: http://www.coloradoriverrecovery.org/documents-publications/foundational-documents/recoverygoals/Razorbacksucker.pdf)
- State of Colorado River Otter Recovery Plan (CDOW 2003). (Available on the Internet at:

http://wildlife.state.co.us/SiteCollectionDocuments/DOW/WildlifeSpecies/SpeciesOfConcern/RecoveryPlans/CDOW2003Riverotterrecoveryplan.pdf)

- Unified Strategy to Implement "BLM's Priorities for Recreation and Visitor Services" Workplan (Purple Book) (BLM 2007p). (Available on the Internet at: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Planning_and_Renewable_Resources/recreation_images/national_recreation/planning.Par.76166.File.dat/im2007-043_a1.pdf)
- Rocky Mountain Research Station, Fire Sciences Laboratory: Fire Effects Information System (USFS 2002a).
- Final Report: Federal Wildland Fire Management Policy and Program (DOI and USDA 1995).
- Visual Resource Management Update, Glenwood Springs and Kremmling Resource Areas, September 28, 2007 (Otak 2007).

Instruction Memorandums and Technical Documents

- BLM IM No. 2007-021. Integration of Best Management Practices into Application for Permit to Drill Approvals and Associated Rights-of-Way.
- BLM IM No. 2007-097. Solar Energy Development Policy.
- BLM IM No. 2009-043. Wind Energy Policy.

BLM Technical References

- P312 -- Livestock Grazing on Western Riparian Areas.
- P316 -- Riparian-Wetland Initiative for the 1990's.
- P322 -- Indexed Bibliography of Stream Habitat Improvement.
- P363 -- Willow Planting for Riparian Area Habitat Improvement
- P373 -- Managing Change – Livestock Grazing on Western Riparian Areas.
- P385 -- Pipe-laying Techniques on Open Range Land: A new Method for Laying Heavy-duty Pipe.
- P392 -- Open Stream Collection and Diversion: An Added Dimension in Providing Water for Grazing Animals.
- P423 -- Hydraulic Considerations for Pipelines Crossing Stream Channels
- TR1730-2 -- Biological Soil Crusts: Ecology and Management.
- TR1734-1 -- Inventory and Monitoring Coordination, Guidelines for the Use of Aerial-Photography in Monitoring.

- TR1734-3 -- Utilization Studies and Residual Measurements.
- TR1734-4 -- Sampling Vegetation Attributes.
- TR1734-6 -- Interpreting Rangeland Indicators.
- TR1737-3 -- Inventory and Monitoring Riparian Areas.
- TR1737-5 -- Riparian and Wetland Classification Review.
- TR1737-6 -- Management Techniques in Riparian Areas.
- TR137-7 -- Procedures for Ecological Site Inventory – With Special reference to Riparian-Wetland Sites.
- TR1737-8 -- Greenline Riparian-Wetland Monitoring.
- TR1737-9 -- Process for Assessing Proper Functioning Condition.
- TR1737-10 -- The Use of Aerial Photographs to Manage Riparian-Wetland Areas.
- TR1737-11 -- Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas.
- TR1737-12 -- Using Aerial Photographs to Assess Proper Functioning Condition of Riparian-Wetland Areas.
- TR1737-13 -- Observing Physical and Biological Change Through Historical Photographs
- TR1737-14 -- Grazing Management for Riparian Wetland Areas: Riparian Area Management (Updated ed. of: Grazing Management in Riparian Areas/Gene Kinch, 1989 Technical Reference 1737-4)
- TR1737-17 -- A Guide to Managing, Restoring, and Conserving Springs in the Western United States
- TR1737-18 -- USFS GTR RMRS-54 CD-Managing for Enhancement of Riparian and Wetland Areas of the Western United States: An Annotated Bibliography.
- TR1737-20 -- Grazing Management Processes and Strategies for Riparian-Wetland Areas
- TR1737-22 -- Riparian Restoration USFS 0423 1201 – SDTDC.
- TR4400-2 -- Actual Use
- TR4400-5 -- Supplemental Studies
- TR4400-7 -- Analysis Interpretation and Evaluation (undergoing update)
- TR4400-8 -- Statistical Considerations
- TR9113-1 -- Planning and Conducting Route Inventories